UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,509	04/16/2004	Steven Bailey	MS304069.01 / MSFTP620US	1955

27195 7590 08/10/2007

AMIN. TUROCY & CALVIN, LLP
24TH FLOOR, NATIONAL CITY CENTER
1900 EAST NINTH STREET
CLEVELAND, OH 44114

EXAMINER	
EHICHIOYA, FRED I	

ART UNIT	PAPER NUMBER
2162	

MAIL DATE	DELIVERY MODE
08/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/826,509	BAILEY ET AL.	
	Examiner	Art Unit	
	Fred I. Ehichioya	2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the communication filed May 16, 2007.

2. Claims 1 – 36 are pending in this Office Action.

Response to Arguments

3. Applicant's arguments with respect to claims 1, 13, 22, 24, and 31 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 – 21, 24 – 28, and 31 - 36 are rejected under 35 U.S.C. 101 because:

(i) Regarding claims 1 and 10, these claims are directed to database engine. Applicant discloses "Database engine is a function that executes transactions concurrently" –see specification page 1, lines 31 – 32. These claims are directed to program per se. When the computer programs claimed as computer listings per se, i.e., the descriptions or expressions of the programs are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer that permit the computer program's functionality to be realized (MPEP 2106.01 [R-5] (I)). Merely amending the claim(s) to supply an appropriate medium is

insufficient under USPTO policy to provide a fully patent-eligible claim under 35 USC 101.

Regarding claims 2 – 9, 11 – 12, they recite computing steps, they are merely descriptive and lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. The claims do not accomplish a "practical application" as forth in MPEP 2106 (II) (A); therefore non-statutory.

(ii) Regarding claims 13 and 21, these claims are directed to synchronization in concurrent transactions. The claimed subject matter does not produce a useful result because the claimed subject matter fails to disclose a complete disclosure that contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful. Such a statement will usually explain the purpose of the invention or how the invention may be used (e.g., a compound is believed to be useful in the treatment of a particular disorder). Regardless of the form of statement of utility, it must enable one ordinarily skilled in the art to understand why the applicant believes the claimed invention is useful. More specifically, the claimed subject matter provides for "**tracking a space availability for data page over all concurrent transactions**". This produced result remains in the abstract and, thus, fails to produce a useful result.

(iii) Regarding claim 24, this claim is directed to computer executable component that operates across a plurality of active transactions to obtain information on a space change for a data page. The claimed subject matter does not produce a useful result because the claimed subject matter fails to disclose a complete disclosure that contain

some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful. Such a statement will usually explain the purpose of the invention or how the invention may be used (e.g., a compound is believed to be useful in the treatment of a particular disorder). Regardless of the form of statement of utility, it must enable one ordinarily skilled in the art to understand why the applicant believes the claimed invention is useful. More specifically, the claimed subject matter provides for "**the data page copied by transaction that requires modification thereof**". This produced result remains in the abstract and, thus, fails to produce a useful result.

(iv) Regarding claims 31 and 36, these claims are directed to manipulating data in a data page by transaction. The claimed subject matter does not produce a useful result because the claimed subject matter fails to disclose a complete disclosure that contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful. Such a statement will usually explain the purpose of the invention or how the invention may be used (e.g., a compound is believed to be useful in the treatment of a particular disorder). Regardless of the form of statement of utility, it must enable one ordinarily skilled in the art to understand why the applicant believes the claimed invention is useful. More specifically, the claimed subject matter provides for "**determining an aggregate size change for the data page**". This produced result remains in the abstract and, thus, fails to produce a useful result.

The claimed invention does not accomplish a "useful result" as forth in MPEP 2106 (II) (A).

Regarding claims 14 – 20, 25 – 28, and 32 - 35, they recite computing steps, they are merely descriptive and lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. The claims do not accomplish a "practical application" as forth in MPEP 2106 (II) (A); therefore non-statutory.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 24, 31, 33, 34 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pub. No. 2002/0129011 issued to Benoit Julien (hereinafter "Julien").

Regarding claim 1, Julien discloses a database engine comprising:

a page aggregator component that operates across concurrent transactions (page 3, [0021] wherein an aggregator unit operative to process the extracted information elements) to obtain information on an aggregate size change that occurs on a data page (page 5, [0046] wherein "50 words before and 100 words after" indicate the aggregate size change); the data page is copied by transaction(s) that requires

modification thereof (page 7, [0076] "extraction and aggregation operations take place, in order to acquire the updated contact information from the home page").

Regarding claim 24, Julien discloses a computer-readable medium having stored thereon a data structure comprising:

a computer executable component that operates across a plurality of active transactions to obtain information on a space change for a data page (page 5, [0046] wherein "50 words before and 100 words after" indicate the aggregate size change), the data page being copied by an active transaction that requires a modification thereof (page 7, [0076] "extraction and aggregation operations take place, in order to acquire the updated contact information from the home page").

Regarding claims 31 and 36, Julien discloses a method for manipulating data in a data page by a transaction comprising:

copying a data page to a reserved space for the transaction (page 7, [0076] "extraction and aggregation operations take place, in order to acquire the updated contact information from the home page"); and

determining an aggregate size change for the data page (page 5, [0046] wherein "50 words before and 100 words" after indicate the aggregate size change).

Regarding claim 33, Julien discloses creating a new page and inserting a row therein (page 4, [0037 wherein "The tag is inserted at a predetermined position with respect to the identified information element". The tag represents the record of the information element).

Regarding claim 34, Julien discloses employing a pointer in the data page to guide a query to the row in the new page (page 3, [0020] wherein the search engine searches the WWW for pages containing or making reference to the name of the company; "reference" is the pointer that guides the query the record in the page).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2, 8, 9, 10, 13 – 16, 21 – 23, 25, 29, 30, 32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Julien in view of US Patent No. 6,643,753 issued to Avner et al., (hereinafter "Avner").

Regarding claim 2, Julien disclose the claimed subject matter as discussed in claim 1, Julien does not explicitly disclose heap allocation as claimed.

Avner discloses a heap allocation component that employs the information to determine an availability of space for the data page (column 11, lines 1 – 6).

It would have been obvious to one of ordinary skills at the time of present invention to combine cited references because Avner's teaching of "heap allocation" would have allowed Julien's system to permits allocations within heaps even if one or more heaps are currently locked. This increases the efficiency of virtual memory usage and reduces the risk of virtual memory fragmentation as suggested by Avner (Summary).

Regarding claim 8, Avner discloses the heap allocation component tracks an availability of space on the data page (column 10, lines 50 – 65).

Regarding claim 9, Avner discloses the heap allocation component and the page aggregator component enforce a set of conditions on a transaction that operates on the data page, such that a space availability for the data page prior to the commit stage of the transaction is assured (column 10, lines 44 – 49).

Regarding claim 10, Julien discloses a database engine comprising:

a page aggregator that works across concurrent transactions (page 3, [0021] wherein an aggregator unit operative to process the extracted information elements) that perform sub-page level operations on a data page (page 7, [0076] "extraction and

aggregation operations take place, in order to acquire the updated contact information from the home page").

Julien does not explicitly disclose a heap manager.

Avner discloses a heap manager that tracks space availability for the data page via information supplied by the page aggregator (column 11, lines 2 - 8).

It would have been obvious to one of ordinary skills at the time of present invention to combine cited references because Avner's teaching of "heap manager" would have allowed Julien's system to permits allocations within heaps even if one or more heaps are currently locked. This increases the efficiency of virtual memory usage and reduces the risk of virtual memory fragmentation as suggested by Avner (Summary).

Regarding claims 13 and 21, Julien discloses a method that facilitates synchronization in concurrent transactions comprising:

obtaining information on an aggregate size change that occur on a data page as a result of concurrent transactions operating on respective copies of the data page (page 5, [0046] wherein "50 words before and 100 words after" indicate the aggregate size change).

Julien does not explicitly track space availability.

However, Avner discloses tracking a space availability for the data page over all the concurrent transactions (column 11, lines 2 - 8).

It would have been obvious to one of ordinary skills at the time of present invention to combine cited references because Avner's teaching of "heap manager" would have allowed Julien's system to permits allocations within heaps even if one or more heaps are currently locked. This increases the efficiency of virtual memory usage and reduces the risk of virtual memory fragmentation as suggested by Avner (Summary).

Regarding claim 14, Avner discloses assigning locks to a resource on the data page (column 2, lines 54 - 55).

Regarding claim 15, Julien discloses modifying the data page (page 7, [0078] wherein the contact information stored in the database 40 for the Web pages(s) connected to the URL address(es) will be updated).

Regarding claim 16, Julien discloses replacing a row with an inserting pointer (page 2, [0014] wherein link and hyperlink are the inserting pointers).

Regarding claim 22, Julien discloses a system for facilitating synchronization in concurrent transactions comprising:

means for obtaining information on an aggregate size change that occur on a data page during modifications thereof by concurrent transactions (page 5, [0046] wherein "50 words before and 100 words after" indicate the aggregate size change).

Julien does not explicitly track space availability.

However, Avner discloses means for tracking a space availability for the data page over all the concurrent transactions (column 11, lines 2 - 8).

It would have been obvious to one of ordinary skills at the time of present invention to combine cited references because Avner's teaching of "heap manager" would have allowed Julien's system to permits allocations within heaps even if one or more heaps are currently locked. This increases the efficiency of virtual memory usage and reduces the risk of virtual memory fragmentation as suggested by Avner (Summary)

Regarding claim 23, Avner discloses means for assuring availability of space on a data page prior to a commit stage of a transaction operating on the data page (column 10, lines 44 – 49).

Regarding claim 25, Avner discloses computer executable component that tracks an availability of space for the data page based on the information (column 11, lines 2 - 8).

Regarding claim 29, Julien discloses a system for facilitating synchronization in concurrent transactions comprising:

means for determining logical permission to insert a row on a data page during modifications thereof by concurrent transactions (page 4, [0037 wherein "The tag is

inserted at a predetermined position with respect to the identified information element". The tag represents the record of the information element).

Julien does not explicitly teach determining a space availability.

However, Avner discloses means for determining a space availability for the data page over the concurrent transactions (column 11, lines 2 - 8).

It would have been obvious to one of ordinary skills at the time of present invention to combine cited references because Avner's teaching of "heap manager" would have allowed Julien's system to permits allocations within heaps even if one or more heaps are currently locked. This increases the efficiency of virtual memory usage and reduces the risk of virtual memory fragmentation as suggested by Avner (Summary)

Regarding claim 30, Julien discloses means for mitigating reorganization of data mound the data page at the commit stage of the concurrent transactions (page 2, [0011] wherein layer and organizing structure are the means for mitigating reorganization).

Regarding claim 32, Avner discloses tracking space availability on the data page across a plurality of concurrent transactions working on the data page (column 11, lines 2 - 8).

Regarding claim 35, Avner discloses locking a resource at a row level on the data page (column 2, lines 54 - 55).

8. Claims 3 – 7, 11, 12, 17 – 20, and 26 - 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Julien in view of Avner and further in view of U.S Patent No. 6,889,249 issued to Miloushev at al., (hereinafter "Miloushev").

Regarding claim 3, Julien and Avner disclose the claimed subject matter as discussed in claims 1 and 2. Julien or Avner does not explicitly disclose lock manager as claimed.

However, Miloushev discloses a lock manager that enables sub page level locking across concurrent transactions (column 37, lines 37 – 42).

I would have been obvious to one of ordinary skills at the data processing art at the time of present invention to combine the cited references because Miloushev's teaching of lock manager would have allowed Julien and Avner's to include lock manager that controls the allocation of disk space to different files and controls access to those files.

Regarding claim 4, Miloushev discloses each of the concurrent transactions modifies a respective copy of the data page (column 22, lines 18 – 25).

Regarding claim 5, Miloushev discloses the page aggregator component enables a determination of space consumptions (column 28, lines 61 – 67) across a respective copy of data page employed by each transaction (column 21, lines 59 – 65).

Regarding claim 6, Miloushev discloses the page aggregator component determines the space consumption across the respective copy from information available in the lock manager (column 29, lines 5 – 18).

Regarding claim 7, Miloushev discloses the sub page level locking is a row level locking (column 36, lines 38 – 51).

Regarding claim 11, Miloushev discloses each of the concurrent transactions modify a respective copy of the data page without consuming all space available on the data page (column 22, lines 18 – 25).

Regarding claim 12, Miloushev discloses a lock manager that facilitates compatibility of operations across the concurrent transactions (column 37, lines 37 – 42).

Regarding claim 17, Julien discloses inserting the row on a new page (page 2, [0014] wherein link and hyperlink are the inserting pointers).

Regarding claim 18, Miloushev discloses storing the information in the locks (column 36, lines 25 – 26).

Regarding claim 19, Miloushev discloses discarding the locks upon a roll back of a transaction (column 38, lines 46 – 58).

Regarding claim 20, Miloushev discloses discarding the locks upon committing a transaction (column 37, line 65 – column 38, line 2).

Regarding claim 26, Miloushev comprising an additional computer executable component that administers logical considerations during data modification on the data page (column 34, lines 60 – 63).

Regarding claim 27, Miloushev discloses the additional computer executable component grants locks at a row level of the data page (column 36, lines 38 – 51).

Regarding claim 28, Miloushev discloses a forwarding pointer device that guides a query to a new location of data (column 21, lines 31 – 38).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred I. Ehichioya whose telephone number is 571-272-4034. The examiner can normally be reached on M - F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 571-272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Fred I. Ehichioya Fred Ehichioya
Patent Examiner
Art Unit 2162

SHAHID ALAM
PRIMARY EXAMINER

August 1, 2007